

Appendix A: Selected Chemical Methods

SAM 2022 — Appendix A: Selected Chemical Methods

The fitness of a method for an intended use is related to site-specific data quality objectives (DQOs) for a particular environmental remediation activity. These selected chemical methods have been assigned tiers (below) to indicate a level of method usability for the specific analyte and sample type. The assigned tiers reflect the conservative view for DQOs involving timely implementation of methods for analysis of a high number of samples (such that multiple laboratories are necessary), low limits of identification and quantification, and appropriate quality control. Assigned usability tiers are indicated next to each method or method combination throughout this appendix.

Tier I: Analyte/sample type is a target of the method(s). Data are available for all aspects of method performance and quality control measures supporting its use for analysis of environmental samples following a contamination incident. Evaluation and/or use of the method(s) in multiple laboratories indicate that the method can be implemented with no additional modifications for the analyte/sample type.

Tier II: (1) The analyte/sample type is a target of the method(s) and the method(s) has been evaluated for the analyte/sample type by one or more laboratories, or (2) the analyte/sample type is not a target of the method(s), but the method(s) has been used by laboratories to address the analyte/sample type. In either case, available data and/or information indicate that modifications will likely be needed for use of the method(s) to address the analyte/sample type (e.g., due to potential interferences, alternate matrices, the need to address different DQOs).

Tier III: The analyte/sample type is not a target of the method(s), and/or no reliable data supporting the method's fitness for its intended use are available. Data from other analytes or sample types, however, suggest that the method(s), with significant modification, may be applicable.

Notes:

- The column headings listed in this Appendix are defined in Section 5.0. Summaries of and access to each method cited are provided in Section 5.2 (see Table 5-1 to locate a specific method summary).
- Some but not all of the analyte degradation products are included in this list. Method users should be aware of potential by-products and degradation products when performing analyses to identify and quantify specific target analytes.

Analyte(s)	CAS RN	Determinative Technique	Solid Samples		Non-Drinking Water Samples		Drinking Water Samples		Air Samples		Wipes	
A-230 (Methyl-[1-(diethylamino)ethylidene]-phosphonamidofluoridate)	2387496-12-8	GC-MS	SOP L-P-107, Rev.3 (EPA PHILIS)	*II	SOP L-P-107, Rev.3 (EPA PHILIS)	*II	SOP L-P-107, Rev.3 (EPA PHILIS)	*II	TO-17 (EPA ORD)	*III	SOP L-P-107, Rev.3 (EPA PHILIS)	*II
			SOP L-A-507, Rev.3 (EPA PHILIS)		SOP L-A-507, Rev.3 (EPA PHILIS)		SOP L-A-507, Rev.3 (EPA PHILIS)				SOP L-A-507, Rev.3 (EPA PHILIS)	
A-232 (Methyl-[1-(diethylamino)ethylidene]-phosphoramidofluoridate)	2387496-04-8	GC-MS	SOP L-P-107, Rev.3 (EPA PHILIS)	*II	SOP L-P-107, Rev.3 (EPA PHILIS)	*II	SOP L-P-107, Rev.3 (EPA PHILIS)	*II	TO-17 (EPA ORD)	*III	SOP L-P-107, Rev.3 (EPA PHILIS)	*II
			SOP L-A-507, Rev.3 (EPA PHILIS)		SOP L-A-507, Rev.3 (EPA PHILIS)		SOP L-A-507, Rev.3 (EPA PHILIS)				SOP L-A-507, Rev.3 (EPA PHILIS)	
A-234 (Ethyl N-[(1E)-1-(diethylamino)ethylidene]-phosphoramidofluoridate)	2387496-06-0	GC-MS	SOP L-P-107, Rev.3 (EPA PHILIS)	*II	SOP L-P-107, Rev.3 (EPA PHILIS)	*II	SOP L-P-107, Rev.3 (EPA PHILIS)	*II	TO-17 (EPA ORD)	*III	SOP L-P-107, Rev.3 (EPA PHILIS)	*II
			SOP L-A-507, Rev.3 (EPA PHILIS)		SOP L-A-507, Rev.3 (EPA PHILIS)		SOP L-A-507, Rev.3 (EPA PHILIS)				SOP L-A-507, Rev.3 (EPA PHILIS)	
Acephate	30560-19-1	LC-MS-MS	Adapted from J.Env.Sci. Health (2014) 49: 23-34	II	538 (EPA OW)	II	538 (EPA OW)	I	Adapted from J. Chromatogr. A, (2007) 1154(1): 3-25	III	Adapted from J. Chromatogr. A, (2007) 1154(1): 3-25	III
			538 (EPA OW)									
Acrylamide	79-06-1	HPLC-UV	Water extraction	III	8316 (EPA SW-846)	II	8316 (EPA SW-846)	II	PV2004 (OSHA)	I	3570/8290A Appendix A (EPA SW-846)	III
			8316 (EPA SW-846)								8316 (EPA SW-846)	
Acrylonitrile	107-13-1	HPLC-UV / GC-MS	5035A (EPA SW-846)	II	524.2 ¹ (EPA OW)	II	524.2 ¹ (EPA OW)	II	PV2004 (OSHA)	III	3570/8290A Appendix A (EPA SW-846)	III
			8260D (EPA SW-846)								8260D (EPA SW-846)	

Analyte(s)	CAS RN	Determinative Technique	Solid Samples		Non-Drinking Water Samples		Drinking Water Samples		Air Samples		Wipes	
Aldicarb (Temik)	116-06-3	HPLC-UV / HPLC-FL / LC-MS-MS	8318A (EPA SW-846)	II	D7645-16 (ASTM)	II	531.2 (EPA OW)	I	5601 (NIOSH)	I	3570/8290A Appendix A (EPA SW-846) 8318A (EPA SW-846)	III
Aldicarb sulfone	1646-88-4	HPLC-UV / HPLC-FL / LC-MS-MS	8318A (EPA SW-846)	II	D7645-16 (ASTM)	II	531.2 (EPA OW)	I	5601 (NIOSH)	III	3570/8290A Appendix A (EPA SW-846) 8318A (EPA SW-846)	III
Aldicarb sulfoxide	1646-87-3	HPLC-UV / HPLC-FL / LC-MS-MS	8318A (EPA SW-846)	III	D7645-16 (ASTM)	II	531.2 (EPA OW)	I	5601 (NIOSH)	III	3570/8290A Appendix A (EPA SW-846) 8318A (EPA SW-846)	III
Allyl alcohol	107-18-6	GC-MS	5035A (EPA SW-846) 8260D (EPA SW-846)	II	5030C (EPA SW-846) 8260D (EPA SW-846)	II	5030C (EPA SW-846) 8260D (EPA SW-846)	II	TO-15 ² (EPA ORD)	III	Not of concern	NA
4-Aminopyridine	504-24-5	HPLC-UV	8330B (EPA SW-846)	III	3535A/8330B (EPA SW-846) 8330B (EPA SW-846)	III	3535A/8330B (EPA SW-846) 8330B (EPA SW-846)	III	Not of concern**	NA	3570/8290A Appendix A (EPA SW-846) 8330B (EPA SW-846)	III
Ammonia	7664-41-7	Visible spectrophotometry / IC	Not of concern**	NA	4500-NH ₃ B (SM) 4500-NH ₃ G (SM)	I	350.1 (EPA OW)	I	6016 (NIOSH)	I	Not of concern**	NA
Ammonium metavanadate (analyze as total vanadium)	7803-55-6	ICP-AES / ICP-MS	3050B/3051A (EPA SW-846) 6010D/6020B (EPA SW-846)	I	3015A (EPA SW-846) 6010D/6020B (EPA SW-846)	I	200.7/200.8 ³ (EPA OW)	I	IO-3.1 (EPA ORD) IO-3.4/IO-3.5 (EPA ORD)	I	9102 (NIOSH) 6010D/6020B (EPA SW-846)	I
Arsenic, Total	7440-38-2	ICP-AES / ICP-MS	3050B/3051A (EPA SW-846) 6010D/6020B (EPA SW-846)	I	3015A (EPA SW-846) 6010D/6020B (EPA SW-846)	I	200.7/200.8 ³ (EPA OW)	I	IO-3.1 (EPA ORD) IO-3.4/IO-3.5 (EPA ORD)	I	9102 (NIOSH) 6010D/6020B (EPA SW-846)	I
Arsenic trioxide (analyze as total arsenic)	1327-53-3	ICP-AES / ICP-MS	3050B/3051A (EPA SW-846) 6010D/6020B (EPA SW-846)	I	3015A (EPA SW-846) 6010D/6020B (EPA SW-846)	I	200.7/200.8 ³ (EPA OW)	I	IO-3.1 (EPA ORD) IO-3.4/IO-3.5 (EPA ORD)	I	9102 (NIOSH) 6010D/6020B (EPA SW-846)	I
Arsine (analyze as total arsenic in non-air samples)	7784-42-1	GFAA / ICP-AES / ICP-MS	3050B/3051A (EPA SW-846) 6010D/6020B (EPA SW-846)	I	3015A (EPA SW-846) 6010D/6020B (EPA SW-846)	I	200.7/200.8 ³ (EPA OW)	I	6001 (NIOSH)	I	9102 (NIOSH) 6010D/6020B (EPA SW-846)	I
Asbestos	1332-21-4	TEM	D5755-09(e1) (soft surfaces-microvac) (ASTM)	III	Not of concern**	NA	Not of concern**	NA	10312:1995 (ISO)	I	D6480-19 (hard surfaces-wipes) (ASTM)	I
Boron trifluoride	7637-07-2	ISE	Not of concern**	NA	Not of concern**	NA	Not of concern**	NA	ID216SG (OSHA)	I	Not of concern**	NA

Analyte(s)	CAS RN	Determinative Technique	Solid Samples		Non-Drinking Water Samples		Drinking Water Samples		Air Samples		Wipes	
Brodifacoum	56073-10-0	LC-MS-MS	3541/3545A (EPA SW-846)	III	D7644-16 (ASTM)	II	D7644-16 (ASTM)	II	Not of concern**	NA	3570/8290A Appendix A (EPA SW-846)	III
			D7644-16 (ASTM)								D7644-16 (ASTM)	
Bromadiolone	28772-56-7	LC-MS-MS	3541/3545A (EPA SW-846)	III	D7644-16 (ASTM)	II	D7644-16 (ASTM)	II	Not of concern**	NA	3570/8290A Appendix A (EPA SW-846)	III
			D7644-16 (ASTM)								D7644-16 (ASTM)	
BZ [Quinuclidinyl benzilate]	6581-06-2	HPLC-UV / LC-MS-MS	3541/3545A (EPA SW-846)	III	Adapted from J. Chromatogr. B (2008) 874: 42-50	III	Adapted from J. Chromatogr. B (2008) 874: 42-50	III	TO-10A (EPA ORD)	III	3570/8290A Appendix A (EPA SW-846)	III
			Adapted from J. Chromatogr. B (2008) 874: 42-50								Adapted from J. Chromatogr. B (2008) 874: 42-50	
Calcium arsenate (analyze as total arsenic)	7778-44-1	ICP-AES / ICP-MS	3050B/3051A (EPA SW-846)	I	3015A (EPA SW-846)	I	200.7/200.8 ³ (EPA OW)	I	IO-3.1 (EPA ORD)	I	9102 (NIOSH)	I
			6010D/6020B (EPA SW-846)		6010D/6020B (EPA SW-846)				IO-3.4/IO-3.5 (EPA ORD)		6010D/6020B (EPA SW-846)	
Carbofuran (Furadan)	1563-66-2	HPLC-UV / HPLC-FL / LC-MS-MS	8318A (EPA SW-846)	II	D7645-16 (ASTM)	II	531.2 (EPA OW)	I	5601 (NIOSH)	I	3570/8290A Appendix A (EPA SW-846)	III
											8318A (EPA SW-846)	
Carbon disulfide	75-15-0	GC-MS	5035A (EPA SW-846)	I	5030C (EPA SW-846)	I	524.2 ¹ (EPA OW)	I	TO-15 (EPA ORD)	I	Not of concern**	NA
			8260D (EPA SW-846)		8260D (EPA SW-846)							
Carfentanil	59708-52-0	LC-MS-MS	3541/3545A (EPA SW-846)	III	3520C/3535A (EPA SW-846)	III	3520C/3535A (EPA SW-846)	III	Not of concern**	NA	PHILIS SOP L-A-309 Rev. 0 / L-A-310 Rev. 1	III
			Adapted from J. Chromatogr. B (2014) 962: 52-58		Adapted from J. Chromatogr. B (2014) 962: 52-58		Adapted from J. Chromatogr. B (2014) 962: 52-58					
Chlorfenvinphos	470-90-6	GC-MS	EPA/600/R-16/114	II	3520C/3535A (EPA SW-846)	I	3520C/3535A (EPA SW-846)	I	TO-10A (EPA ORD)	II	EPA/600/R-16/114	II
					8270E (EPA SW-846)		8270E (EPA SW-846)					
Chlorine	7782-50-5	Visible spectrophotometry	Not of concern**	NA	4500-Cl G (SM)	I	4500-Cl G (SM)	I	Adapted from Analyst (1999) 124(12): 1853-1857	II	Not of concern**	NA
									4500-Cl G (SM)			
2-Chloroethanol	107-07-3	GC-MS / GC-FID	5035A (EPA SW-846)	II	5030C (EPA SW-846)	II	5030C (EPA SW-846)	II	2513 (NIOSH)	I	Not of concern**	NA
			8260D (EPA SW-846)		8260D (EPA SW-846)		8260D (EPA SW-846)					

Analyte(s)	CAS RN	Determinative Technique	Solid Samples		Non-Drinking Water Samples		Drinking Water Samples		Air Samples		Wipes	
3-Chloro-1,2-propanediol	96-24-2	GC-MS	Adapted from Eur. J. Lipid Sci. Technol. (2011) 113: 345-355	II	Adapted from J. Chromatogr. A (2000) 866: 65-77	II	Adapted from J. Chromatogr. A (2000) 866: 65-77	II	TO-10A ⁴ (EPA ORD)	III	Adapted from Eur. J. Lipid Sci. Technol. (2011) 113: 345-355	III
Chloropicrin	76-06-2	GC-MS / GC-ECD	EPA/600/R-16/114 ¹⁶	II	551.1 (EPA OW)	I	551.1 (EPA OW)	I	PV2103 (OSHA)	I	EPA/600/R-16/114 ¹⁶	II
Chlorosarin	1445-76-7	GC-MS	EPA/600/R-16/115	*III	EPA/600/R-16/115	*III	EPA/600/R-16/115	*III	TO-17 ⁴ (EPA ORD)	*III	EPA/600/R-16/115	*III
Chlorosoman	7040-57-5	GC-MS	EPA/600/R-16/115	*III	EPA/600/R-16/115	*III	EPA/600/R-16/115	*III	TO-17 ⁴ (EPA ORD)	*III	EPA/600/R-16/115	*III
Chlorovinyl arsonic acid (CVAOA) (degradation product of Lewisite)	64038-44-4	LC-MS-MS / ICP-AES / ICP-MS	EPA/600/R-15/258 ⁵	*II	EPA/600/R-15/258 ⁵	*II	EPA/600/R-15/258 ⁵	*II	IO-3.1 ⁶ (EPA ORD)	*I	EPA/600/R-15/258 ⁵	*II
									IO-3.4/IO-3.5 ⁶ (EPA ORD)			
2-Chlorovinylarsonous acid (CVAA) (degradation product of Lewisite)	85090-33-1	LC-MS-MS / ICP-AES / ICP-MS	EPA/600/R-15/258 ⁵	*II	EPA/600/R-15/258 ⁵	*II	EPA/600/R-15/258 ⁵	*II	IO-3.1 ⁶ (EPA ORD)	*I	EPA/600/R-15/258 ⁵	*II
									IO-3.4/IO-3.5 ⁶ (EPA ORD)			
Chlorpyrifos	2921-88-2	GC-MS	EPA/600/R-16/114	II	EPA/600/R-16/114	II	525.2 ⁷ (EPA OW)	II	TO-10A (EPA ORD)	I	EPA/600/R-16/114	II
Chlorpyrifos oxon	5598-15-2	GC-MS / LC-MS-MS	EPA/600/R-16/114	III	540 (EPA OW)	I	540 (EPA OW)	I	TO-10A (EPA ORD)	III	EPA/600/R-16/114	III
Crimidine	535-89-7	GC-MS	EPA/600/R-16/114	II	EPA/600/R-16/114	II	EPA/600/R-16/114	II	Not of concern**	NA	EPA/600/R-16/114	II
Cyanide, Amenable to chlorination	NA	Visible spectrophotometry	3135.2I (EPA RLAB)	I	3135.2I ⁸ (EPA RLAB)	I	3135.2I ⁸ (EPA RLAB)	I	Not of concern**	NA	3135.2I (EPA RLAB)	III
Cyanide, Total	57-12-5	Visible spectrophotometry	ISM02.3 CN (EPA CLP)	I	ISM02.3 CN ⁹ (EPA CLP)	I	335.4 (EPA OW)	I	6010 (NIOSH)	I	ISM02.3 CN (EPA CLP)	III
Cyanogen chloride	506-77-4	GC-MS/GC-ECD	Adapted from Encyclopedia of Anal. Chem. (2006) DOI: 10.1002/9780 470027318.a0809	II	Adapted from Encyclopedia of Anal. Chem. (2006) DOI: 10.1002/9780 470027318.a0809	II	Adapted from Encyclopedia of Anal. Chem. (2006) DOI: 10.1002/9780 470027318.a0809	II	TO-15 (EPA ORD)	III	Not of concern**	NA
Cyclohexyl sarin (GF)	329-99-7	GC-MS	EPA/600/R-16/115	*I	EPA/600/R-16/115	*I	EPA/600/R-16/115	*I	TO-17 (EPA ORD)	II	EPA/600/R-16/115	*I

Analyte(s)	CAS RN	Determinative Technique	Solid Samples		Non-Drinking Water Samples		Drinking Water Samples		Air Samples		Wipes	
1,2-Dichloroethane (degradation product of HD)	107-06-2	GC-MS	5035A (EPA SW-846)	I	5030C (EPA SW-846)	I	524.2 ¹ (EPA OW)	I	TO-15 (EPA ORD)	I	Not of concern**	NA
			8260D (EPA SW-846)		8260D (EPA SW-846)							
Dichlorvos	62-73-7	GC-MS	EPA/600/R-16/114	II	3535A (EPA SW-846)	I	525.2 ⁷ (EPA OW)	I	TO-10A (EPA ORD)	I	EPA/600/R-16/114	II
					8270E (EPA SW-846)							
Dicrotophos	141-66-2	GC-MS	EPA/600/R-16/114	II	3535A (EPA SW-846)	I	3535A (EPA SW-846)	I	TO-10A (EPA ORD)	I	EPA/600/R-16/114	II
					8270E (EPA SW-846)		8270E (EPA SW-846)					
Diesel range organics	NA	GC-FID	3541/3545A (EPA SW-846)	I	3520C/3535A (EPA SW-846)	I	3520C/3535A (EPA SW-846)	I	Not of concern**	NA	3570/8290A Appendix A (EPA SW-846)	I
			8015D (EPA SW-846)		8015D (EPA SW-846)		8015D (EPA SW-846)				8015D (EPA SW-846)	
Diisopropyl methylphosphonate (DIMP) (degradation product of GB)	1445-75-6	HPLC-UV / LC-MS-MS	E2866-12 (ASTM)	II	D7597-16 (ASTM)	II	538 (EPA OW)	I	TO-10A ⁴ (EPA ORD)	III	EPA/600/R-13/224	II
Dimethylphosphite	868-85-9	GC-MS	EPA/600/R-16/114	II	Not of concern**	NA	Not of concern**	NA	TO-10A (EPA ORD)	II	EPA/600/R-16/114	II
Dimethylphosphoramidic acid (degradation product of GA)	33876-51-6	HPLC-UV / LC-MS-MS	E2866-12 (ASTM)	III	D7597-16 (ASTM)	III	D7597-16 (ASTM)	III	TO-10A (EPA ORD)	III	EPA/600/R-13/224	III
Diphacinone	82-66-6	LC-MS-MS	3541/3545A (EPA SW-846)	III	D7644-16 (ASTM)	II	D7644-16 (ASTM)	II	Not of concern**	NA	3570/8290A Appendix A (EPA SW-846)	III
			D7644-16 (ASTM)								D7644-16 (ASTM)	
Disulfoton	298-04-4	GC-MS / GC-FPD	EPA/600/R-16/114	II	525.2 ^{7,10} (EPA OW)	II	525.2 ^{7,10} (EPA OW)	II	5600 (NIOSH)	I	EPA/600/R-16/114	II
Disulfoton sulfone oxon	2496-91-5	GC-MS / GC-FPD	EPA/600/R-16/114	III	525.2 ^{7,10} (EPA OW)	III	525.2 ^{7,10} (EPA OW)	III	5600 (NIOSH)	III	EPA/600/R-16/114	III
Disulfoton sulfoxide	2497-07-6	GC-MS / GC-FPD	EPA/600/R-16/114	III	525.2 ^{7,10} (EPA OW)	II	525.2 ^{7,10} (EPA OW)	II	5600 (NIOSH)	III	EPA/600/R-16/114	III
Disulfoton sulfoxide oxon	2496-92-6	GC-MS / GC-FPD	EPA/600/R-16/114	III	525.2 ^{7,10} (EPA OW)	III	525.2 ^{7,10} (EPA OW)	III	5600 (NIOSH)	III	EPA/600/R-16/114	III
1,4-Dithiane (degradation product of HD)	505-29-3	GC-MS	EPA/600/R-16/114	II	EPA/600/R-16/114	II	EPA/600/R-16/114	II	Not of concern**	NA	EPA/600/R-16/114	II

Analyte(s)	CAS RN	Determinative Technique	Solid Samples		Non-Drinking Water Samples		Drinking Water Samples		Air Samples		Wipes	
EA 2192 [S-2-(diisopropylamino)ethyl methylphosphonothioic acid] (hydrolysis product of VX)	73207-98-4	HPLC-UV / LC-MS-MS	3541/3545A (EPA SW-846)	*III	EPA/600/R-15/097	*II	EPA/600/R-15/097	*II	TO-10A (EPA ORD)	*III	3570/8290A Appendix A (EPA SW-846)	*III
			EPA/600/R-15/097								EPA/600/R-15/097	
Ethyl methylphosphonic acid (EMPA) (degradation product of VX)	1832-53-7	HPLC-UV / LC-MS-MS	E2866-12 (ASTM)	II	D7597-16 (ASTM)	II	D7597-16 (ASTM)	III	TO-10A (EPA ORD)	III	EPA/600/R-13/224	II
Ethyl dichloroarsine (ED)	598-14-1	GC-MS	3541/3545A (EPA SW-846)	III	3535A (EPA SW-846)	III	3535A (EPA SW-846)	III	TO-15 (EPA ORD)	III	9102 (NIOSH)	III
			8270E (EPA SW-846)								8270E (EPA SW-846)	
N-Ethyldiethanolamine (EDEA) (degradation product of HN-1)	139-87-7	LC-MS-MS / IC- conductivity detection	3541/3545A (EPA SW-846)	III	D7599-16 (ASTM)	II	D7599-16 (ASTM)	III	3509 (NIOSH)	III	EPA/600/R-11/143	II
			EPA/600/R-11/143									
Ethylene oxide	75-21-8	GC-MS	5035A (EPA SW-846)	II	5030C (EPA SW-846)	II	5030C (EPA SW-846)	II	TO-15 (EPA ORD)	I	Not of concern**	NA
			8260D (EPA SW-846)		8260D (EPA SW-846)		8260D (EPA SW-846)					
Fenamiphos	22224-92-6	GC-MS	EPA/600/R-16/114	II	EPA/600/R-16/114	II	525.2 ⁷ (EPA OW)	I	TO-10A (EPA ORD)	II	EPA/600/R-16/114	II
Fentanyl	437-38-7	LC-MS-MS	3541/3545A (EPA SW-846)	III	3520C/3535A (EPA SW-846)	III	3520C/3535A (EPA SW-846)	III	Not of concern**	NA	PHILIS SOP L-A-309 Rev. 0 / L-A-310 Rev. 1	II
			Adapted from J. Chromatogr. A (2011) 1218: 1620 - 1649		Adapted from J. Chromatogr. A (2011) 1218: 1620 - 1649		Adapted from J. Chromatogr. A (2011) 1218: 1620 - 1649					
Fluoride	16984-48-8	IC-conductivity detection	Not of concern**	NA	300.1, Rev 1.0 (EPA OW)	I	300.1, Rev 1.0 (EPA OW)	I	Not of concern**	NA	Not of concern**	NA
Fluoroacetamide	640-19-7	GC-MS	Adapted from J. Chromatogr. B (2008) 876(1): 103-108	II	Adapted from J. Chromatogr. B (2008) 876(1): 103-108	II	Adapted from J. Chromatogr. B (2008) 876(1): 103-108	II	Adapted from J. Chromatogr. B (2008) 876(1): 103-108	III	Adapted from J. Chromatogr. B (2008) 876(1): 103-108	III
Fluoroacetic acid and fluoroacetate salts (analyze as fluoroacetate ion)	NA	LC-MS / LC-MS-MS	Adapted from J. Chromatogr. A (2007) 1139: 271-278	III	EPA/600/R-18/056	II	EPA/600/R-18/056	II	S301-1 (NIOSH)	III	Adapted from J. Chromatogr. A (2007) 1139: 271-278	III
									Adapted from J. Chromatogr. A (2007) 1139: 271-278			
2-Fluoroethanol	371-62-0	GC-MS / GC-FID	5035A (EPA SW-846)	III	5030C (EPA SW-846)	III	5030C (EPA SW-846)	III	2513 (NIOSH)	III	Not of concern**	NA
			8260D (EPA SW-846)		8260D (EPA SW-846)		8260D (EPA SW-846)					

Analyte(s)	CAS RN	Determinative Technique	Solid Samples		Non-Drinking Water Samples		Drinking Water Samples		Air Samples		Wipes	
Fluorosilicic acid (analyze as fluoride)	16961-83-4	IC-conductivity detection	Not of concern**	NA	300.1, Rev 1.0 (EPA OW)	I	300.1, Rev 1.0 (EPA OW)	I	Not of concern**	NA	Not of concern**	NA
Formaldehyde	50-00-0	FGC-ECD / HPLC-UV	8315A (EPA SW-846)	I	8315A (EPA SW-846)	I	556.1 (EPA OW)	I	2016 (NIOSH)	I	3570/8290A Appendix A (EPA SW-846)	III
							8315A (EPA SW-846)					
Gasoline range organics	NA	GC-FID	5035A (EPA SW-846)	I	5030C (EPA SW-846)	I	5030C (EPA SW-846)	I	Not of concern**	NA	3570/8290A Appendix A (EPA SW-846)	I
			8015D (EPA SW-846)		8015D (EPA SW-846)		8015D (EPA SW-846)				8015D (EPA SW-846)	
Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	121-82-4	HPLC-UV	8330B (EPA SW-846)	I	3535A/8330B (EPA SW-846)	I	3535A/8330B (EPA SW-846)	I	Not of concern**	NA	3570/8290A Appendix A (EPA SW-846)	I
					8330B (EPA SW-846)		8330B (EPA SW-846)					
Hexamethylenetriperoxidediamine (HMTD)	283-66-9	LC-MS	8330B (EPA SW-846)	II	3535A/8330B (EPA SW-846)	II	3535A/8330B (EPA SW-846)	II	Not of concern**	NA	3570/8290A Appendix A (EPA SW-846)	III
			Adapted from Analyst (2001) 126:1689-1693		Adapted from Analyst (2001) 126:1689-1693		Adapted from Analyst (2001) 126:1689-1693				Adapted from Analyst (2001) 126:1689-1693	
Hydrogen bromide	10035-10-6	IC-conductivity detection	Not of concern**	NA	Not of concern**	NA	Not of concern**	NA	7907 (NIOSH)	I	Not of concern**	NA
Hydrogen chloride	7647-01-0	IC-conductivity detection	Not of concern**	NA	Not of concern**	NA	Not of concern**	NA	7907 (NIOSH)	I	Not of concern**	NA
Hydrogen cyanide	74-90-8	Visible spectrophotometry	Not of concern**	NA	Not of concern**	NA	Not of concern**	NA	6010 (NIOSH)	I	Not of concern**	NA
Hydrogen fluoride	7664-39-3	IC-conductivity detection	Not of concern**	NA	Not of concern**	NA	Not of concern**	NA	7906 (NIOSH)	I	Not of concern**	NA
Hydrogen sulfide	7783-06-4	IC-conductivity detection	Not of concern**	NA	Not of concern**	NA	Not of concern**	NA	6013 (NIOSH)	I	Not of concern**	NA
Isopropyl methylphosphonic acid (IMPA) (degradation product of GB)	1832-54-8	HPLC-UV / LC-MS-MS	E2866-12 (ASTM)	II	D7597-16 (ASTM)	II	D7597-16 (ASTM)	III	TO-10A (EPA ORD)	III	EPA/600/R-13/224	II

Analyte(s)	CAS RN	Determinative Technique	Solid Samples		Non-Drinking Water Samples		Drinking Water Samples		Air Samples		Wipes	
Kerosene	64742-81-0	GC-FID	3541/3545A (EPA SW-846)	I	3520C/3535A (EPA SW-846)	I	3520C/3535A (EPA SW-846)	I	Not of concern**	NA	3570/8290A Appendix A (EPA SW-846)	I
			8015D (EPA SW-846)		8015D (EPA SW-846)		8015D (EPA SW-846)				8015D (EPA SW-846)	
Lead arsenate (analyze as total arsenic)	7645-25-2	ICP-AES / ICP-MS	3050B/3051A (EPA SW-846)	I	3015A (EPA SW-846)	I	200.7/200.8 ³ (EPA OW)	I	IO-3.1 (EPA ORD)	I	9102 (NIOSH)	I
			6010D/6020B (EPA SW-846)		6010D/6020B (EPA SW-846)				IO-3.4/IO-3.5 (EPA ORD)		6010D/6020B (EPA SW-846)	
Lewisite 1 (L-1) [2-chlorovinylchloroarsine]	541-25-3	ICP-AES / ICP-MS / LC-MS-MS	EPA/600/R-15/258 ⁵	*II	EPA/600/R-15/258 ⁵	*II	EPA/600/R-15/258 ⁵	*II	IO-3.1 ⁶ (EPA ORD)	*I	EPA/600/R-15/258 ⁵	*II
									IO-3.4/IO-3.5 ⁵ (EPA ORD)			
Lewisite 2 (L-2) [bis(2-chlorovinyl)chloroarsine]	40334-69-8	ICP-AES / ICP-MS / LC-MS-MS	EPA/600/R-15/258 ⁵	*III	EPA/600/R-15/258 ⁵	*III	EPA/600/R-15/258 ⁵	*III	IO-3.1 ⁶ (EPA ORD)	*I	EPA/600/R-15/258 ⁵	*III
									IO-3.4/IO-3.5 ⁵ (EPA ORD)			
Lewisite 3 (L-3) [tris(2-chlorovinyl)arsine]	40334-70-1	ICP-AES / ICP-MS / LC-MS-MS	EPA/600/R-15/258 ⁵	*III	EPA/600/R-15/258 ⁵	*III	EPA/600/R-15/258 ⁵	*III	IO-3.1 ⁶ (EPA ORD)	*I	EPA/600/R-15/258 ⁵	*III
									IO-3.4/IO-3.5 ⁵ (EPA ORD)			
Lewisite oxide (degradation product of Lewisite)	1306-02-1	ICP-AES / ICP-MS / LC-MS-MS	EPA/600/R-15/258 ⁵	*III	EPA/600/R-15/258 ⁵	*III	EPA/600/R-15/258 ⁵	*III	IO-3.1 ⁶ (EPA ORD)	*I	EPA/600/R-15/258 ⁵	*III
									IO-3.4/IO-3.5 ⁵ (EPA ORD)			
Mercuric chloride (analyze as total mercury)	7487-94-7	Visible spectrophotometry / CVAA / CVAFS	7473 ¹¹ (EPA SW-846)	I	245.1 ¹² (EPA OW)	I	245.1 (EPA OW)	I	Not of concern**	NA	9102 (NIOSH)	I
											7473 ¹¹ (EPA SW-846)	
Mercury, Total	7439-97-6	Visible spectrophotometry / CVAA / CVAFS	7473 ¹¹ (EPA SW-846)	I	245.1 ¹² (EPA OW)	I	245.1 (EPA OW)	I	IO-5 (EPA ORD)	I	9102 (NIOSH)	I
											7473 ¹¹ (EPA SW-846)	
Methamidophos	10265-92-6	LC-MS-MS	J.Env.Sci. Health (2014) 49: 23-34	II	538 (EPA OW)	I	538 (EPA OW)	I	Adapted from J. Chromatogr. A (2007) 1154(1): 3-25	III	Adapted from J. Chromatogr. A (2007) 1154(1): 3-25	III
			538 (EPA OW)									
Methomyl	16752-77-5	HPLC-UV / HPLC-FL / LC-MS-MS	8318A (EPA SW-846)	II	531.2 (EPA OW)	I	531.2 (EPA OW)	I	5601 (NIOSH)	I	3570/8290A Appendix A (EPA SW-846)	III
											8318A (EPA SW-846)	
Methoxyethylmercuric acetate (analyze as total mercury)	151-38-2	Visible spectrophotometry / CVAA / CVAFS	7473 ¹¹ (EPA SW-846)	I	245.1 ¹² (EPA OW)	I	245.1 (EPA OW)	I	IO-5 (EPA ORD)	I	9102 (NIOSH)	I
											7473 ¹¹ (EPA SW-846)	
Methyl acrylonitrile	126-98-7	HPLC-UV / GC-MS	5035A (EPA SW-846)	II	524.2 ¹ (EPA OW)	II	524.2 ¹ (EPA OW)	II	PV2004 (OSHA)	III	3570/8290A Appendix A (EPA SW-846)	III
											8260D (EPA SW-846)	

Analyte(s)	CAS RN	Determinative Technique	Solid Samples		Non-Drinking Water Samples		Drinking Water Samples		Air Samples		Wipes	
Methylamine	74-89-5	HPLC-FL / HPLC-vis	Not of concern**	NA	Not of concern**	NA	Not of concern**	NA	OSHA 40	I	Not of concern**	NA
N-Methyldiethanolamine (MDEA) (degradation product of HN-2)	105-59-9	LC-MS-MS / IC-conductivity detection	3541/3545A (EPA SW-846)	III	D7599-16 (ASTM)	II	D7599-16 (ASTM)	III	3509 (NIOSH)	III	EPA/600/R-11/143	II
			EPA/600/R-11/143									
1-Methylethyl ester ethylphosphonofluoridic acid (GE)	1189-87-3	GC-MS	EPA/600/R-16/115	*III	EPA/600/R-16/115	*III	EPA/600/R-16/115	*III	TO-17 ⁴ (EPA ORD)	*III	EPA/600/R-16/115	*III
3-Methyl fentanyl	42045-87-4	LC-MS-MS	3541/3545A (EPA SW-846)	III	3520C/3535A (EPA SW-846)	III	3520C/3535A (EPA SW-846)	III	Not of concern**	NA	PHILIS SOP L-A-309 Rev. 0 / L-A-310 Rev. 1	III
			Adapted from J. Chromatogr. B (2014) 962: 52-58		Adapted from J. Chromatogr. B (2014) 962: 52-58		Adapted from J. Chromatogr. B (2014) 962: 52-58					
Methyl fluoroacetate (analyze as fluoroacetate ion)	453-18-9	LC-MS	J. Chromatogr. A (2007) 1139: 271-278	III	EPA/600/R-18/056	II	EPA/600/R-18/056	II	S301-1 (NIOSH)	III	J. Chromatogr. A (2007) 1139: 271-278	III
									J. Chromatogr. A (2007) 1139: 271-278			
Methyl hydrazine	60-34-4	Visible spectrophotometry/ HPLC-UV	3541/3545A (EPA SW-846)	III	J. Chromatogr. B (1993) 617: 157-162	III	J. Chromatogr. B (1993) 617: 157-162	III	3510 (NIOSH)	I	3570/8290A Appendix A (EPA SW-846)	III
			J. Chromatogr. B (1993) 617: 157-162								J. Chromatogr. B (1993) 617: 157-162	
Methyl isocyanate	624-83-9	HPLC-UV	Not of concern**	NA	Not of concern**	NA	Not of concern**	NA	OSHA 54	I	Not of concern**	NA
Methyl paraoxon	950-35-6	GC-MS	EPA/600/R-16/114	III	3535A (EPA SW-846)	III	3535A (EPA SW-846)	III	TO-10A (EPA ORD)	III	EPA/600/R-16/114	III
					8270E ¹⁰ (EPA SW-846)		8270E ¹⁰ (EPA SW-846)					
Methyl parathion	298-00-0	GC-MS	EPA/600/R-16/114	II	3535A (EPA SW-846)	I	3535A (EPA SW-846)	I	TO-10A (EPA ORD)	I	EPA/600/R-16/114	II
					8270E (EPA SW-846)		8270E (EPA SW-846)					
Methylphosphonic acid (MPA) (degradation product of VX, GB, & GD)	993-13-5	HPLC-UV / LC-MS-MS	E2866-12 (ASTM)	II	D7597-16 (ASTM)	II	D7597-16 (ASTM)	III	TO-10A (EPA ORD)	III	EPA/600/R-13/224	II
Mevinphos	7786-34-7	GC-MS	EPA/600/R-16/114	II	3535A (EPA SW-846)	I	525.2 ⁷ (EPA OW)	I	TO-10A (EPA ORD)	II	EPA/600/R-16/114	II
					8270E (EPA SW-846)							

Analyte(s)	CAS RN	Determinative Technique	Solid Samples		Non-Drinking Water Samples		Drinking Water Samples		Air Samples		Wipes	
Monocrotophos	6923-22-4	GC-MS	3541/3545A (EPA SW-846)	I	3535A (EPA SW-846)	I	3535A (EPA SW-846)	I	TO-10A (EPA ORD)	III	3570/8290A Appendix A (EPA SW-846)	III
			8270E (EPA SW-846)		8270E (EPA SW-846)		8270E (EPA SW-846)				8270E (EPA SW-846)	
Mustard, nitrogen (HN-1) [bis(2-chloroethyl)ethylamine]	538-07-8	GC-MS	EPA/600/R-12/653	*II	EPA/600/R-12/653	*II	EPA/600/R-12/653	*II	TO-17 (EPA ORD)	*III	EPA/600/R-12/653	*II
Mustard, nitrogen (HN-2) [2,2'-dichloro-N-methyldiethylamine N,N-bis(2-chloroethyl)methylamine]	51-75-2	GC-MS	EPA/600/R-12/653	*III	EPA/600/R-12/653	*III	EPA/600/R-12/653	*III	TO-17 (EPA ORD)	*III	EPA/600/R-12/653	*III
Mustard, nitrogen (HN-3) [tris(2-chloroethyl)amine]	555-77-1	GC-MS	EPA/600/R-12/653	*II	EPA/600/R-12/653	*II	EPA/600/R-12/653	*II	TO-17 (EPA ORD)	*III	EPA/600/R-12/653	*II
Mustard, sulfur / Mustard gas (HD)	505-60-2	GC-MS	EPA/600/R-16/115	*I	EPA/600/R-16/115	*I	EPA/600/R-16/115	*I	TO-17 (EPA ORD)	*II	EPA/600/R-16/115	*I
Nicotine compounds (analyze as nicotine)	54-11-5	GC-MS	EPA/600/R-16/114	II	3535A (EPA SW-846)	II	3535A (EPA SW-846)	II	Not of concern**	NA	EPA/600/R-16/114	II
					8270E (EPA SW-846)		8270E (EPA SW-846)					
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	2691-41-0	HPLC-UV	8330B (EPA SW-846)	I	3535A/8330B (EPA SW-846)	I	3535A/8330B (EPA SW-846)	I	Not of concern**	NA	3570/8290A Appendix A (EPA SW-846)	I
					8330B (EPA SW-846)		8330B (EPA SW-846)				8330B (EPA SW-846)	
Osmium tetroxide (analyze as total osmium)	20816-12-0	ICP-AES / ICP-MS	3051A (EPA SW-846)	II	3015A (EPA SW-846)	II	3015A (EPA SW-846)	II	IO-3.1 (EPA ORD)	II	3051A (EPA SW-846)	III
			6010D/6020B (EPA SW-846)		6010D/6020B (EPA SW-846)		6010D/6020B (SW-846)		IO-3.4 (EPA ORD)		6010D/6020B (EPA SW-846)	
Oxamyl	23135-22-0	HPLC-UV / HPLC-FL / LC-MS-MS	8318A (EPA SW-846)	II	D7645-16 (ASTM)	II	531.2 (EPA OW)	I	5601 (NIOSH)	I	3570/8290A Appendix A (EPA SW-846)	III
											8318A (EPA SW-846)	
Paraoxon	311-45-5	GC-MS	EPA/600/R-16/114	III	3520C/3535A (EPA SW-846)	III	3520C/3535A (EPA SW-846)	III	TO-10A (EPA ORD)	III	EPA/600/R-16/114	III
					8270E (EPA SW-846)		8270E (EPA SW-846)					
Paraquat	4685-14-7	HPLC-UV / LC-MS-MS	Adapted from J. Chromatogr. A (2008) 1196-1197:110-116	II	549.2 (EPA OW)	I	549.2 (EPA OW)	I	Not of concern**	NA	Adapted from J. Chromatogr. A (2008) 1196-1197:110-116	III
Parathion	56-38-2	GC-MS	EPA/600/R-16/114	II	3520C/3535A (EPA SW-846)	I	3520C/3535A (EPA SW-846)	I	TO-10A (EPA ORD)	III	EPA/600/R-16/114	II
					8270E (EPA SW-846)		8270E (EPA SW-846)					

Analyte(s)	CAS RN	Determinative Technique	Solid Samples		Non-Drinking Water Samples		Drinking Water Samples		Air Samples		Wipes	
Pentaerythritol tetranitrate (PETN)	78-11-5	HPLC-UV	8330B (EPA SW-846)	I	3535A/8330B (EPA SW-846)	I	3535A/8330B (EPA SW-846)	I	Not of concern**	NA	3570/8290A Appendix A (EPA SW-846)	I
					8330B (EPA SW-846)		8330B (EPA SW-846)				8330B (EPA SW-846)	
Phencyclidine	77-10-1	GC-MS	EPA/600/R-16/114	II	EPA/600/R-16/114	II	EPA/600/R-16/114	II	TO-10A (EPA ORD)	II	9106/9109 (NIOSH)	II
Phorate	298-02-2	GC-MS	EPA/600/R-16/114	II	3535A (EPA SW-846)	I	3535A (EPA SW-846)	I	TO-10A (EPA ORD)	II	EPA/600/R-16/114	II
					8270E ¹⁰ (EPA SW-846)		8270E ¹⁰ (EPA SW-846)					
Phorate sulfone	2588-04-7	GC-MS / LC-MS-MS	EPA/600/R-16/114	III	540 (EPA OW)	I	540 (EPA OW)	I	TO-10A (EPA ORD)	III	EPA/600/R-16/114	III
Phorate sulfone oxon	2588-06-9	GC-MS / LC-MS-MS	EPA/600/R-16/114	III	540 (EPA OW)	III	540 (EPA OW)	III	TO-10A (EPA ORD)	III	EPA/600/R-16/114	III
Phorate sulfoxide	2588-03-6	GC-MS / LC-MS-MS	EPA/600/R-16/114	III	540 (EPA OW)	I	540 (EPA OW)	I	TO-10A (EPA ORD)	III	EPA/600/R-16/114	III
Phorate sulfoxide oxon	2588-05-8	GC-MS / LC-MS-MS	EPA/600/R-16/114	III	540 (EPA OW)	III	540 (EPA OW)	III	TO-10A (EPA ORD)	III	EPA/600/R-16/114	III
Phosgene	75-44-5	GC-NPD	Not of concern**	NA	Not of concern**	NA	Not of concern**	NA	OSHA 61	I	Not of concern**	NA
Phosphamidon	13171-21-6	GC-MS	EPA/600/R-16/114	II	3520C/3535A (EPA SW-846)	I	525.3 (EPA OW)	I	TO-10A (EPA ORD)	II	EPA/600/R-16/114	II
					8270E (EPA SW-846)							
Phosphine	7803-51-2	Visible spectrophotometry	Not of concern**	NA	Not of concern**	NA	Not of concern**	NA	6002 (NIOSH)	I	Not of concern**	NA
Phosphorus trichloride	7719-12-2	Visible spectrophotometry	Not of concern**	NA	Not of concern**	NA	Not of concern**	NA	6402 (NIOSH)	I	Not of concern**	NA
Pinacolyl methyl phosphonic acid (PMPA) (degradation product of GD)	616-52-4	HPLC-UV / LC-MS-MS	E2866-12 (ASTM)	II	D7597-16 (ASTM)	II	D7597-16 (ASTM)	III	TO-10A (EPA ORD)	III	EPA/600/R-13/224	II

Analyte(s)	CAS RN	Determinative Technique	Solid Samples		Non-Drinking Water Samples		Drinking Water Samples		Air Samples		Wipes	
Propylene oxide	75-56-9	GC-MS / GC-FID	5035A (EPA SW-846)	II	5030C (EPA SW-846)	II	5030C (EPA SW-846)	II	1612 (NIOSH)	I	Not of concern**	NA
			8260D (EPA SW-846)		8260D (EPA SW-846)		8260D (EPA SW-846)					
R 33 (VR) [methylphosphonothioic acid, S-[2-(diethylamino)ethyl] O-2-methylpropyl ester]	159939-87-4	GC-MS	EPA/600/R-12/653	*II	EPA/600/R-12/653	*II	EPA/600/R-12/653	*II	TO-17 (EPA ORD)	*III	EPA/600/R-12/653	*II
Sarin (GB)	107-44-8	GC-MS	EPA/600/R-16/115	*I	EPA/600/R-16/115	*I	EPA/600/R-16/115	*I	TO-17 ⁴ (EPA ORD)	*II	EPA/600/R-16/115	*I
Sodium arsenite (analyze as total arsenic)	7784-46-5	ICP-AES / ICP-MS	3050B/3051A (EPA SW-846)	I	3015A (EPA SW-846)	I	200.7/200.8 ³ (EPA OW)	I	IO-3.1 (EPA ORD)	I	9102 (NIOSH)	I
			6010D/6020B (EPA SW-846)		6010D/6020B (EPA SW-846)		300.1, Rev 1.0 ¹⁴ (EPA OW)		IO-3.4/IO-3.5 (EPA ORD)		6010D/6020B (EPA SW-846)	
Sodium azide (analyze as azide ion)	26628-22-8	IC-conductivity detection	Adapted from J. Forensic Sci. (1998) 43(1): 200-202 ¹³	II	Adapted from J. Forensic Sci. (1998) 43(1): 200-202 ¹³	II	Adapted from J. Forensic Sci. (1998) 43(1): 200-202 ¹³	II	ID-211 (OSHA)	I	ID-211 (OSHA)	I
			300.1, Rev 1.0 ¹⁴ (EPA OW)		300.1, Rev 1.0 ¹⁴ (EPA OW)		300.1, Rev 1.0 ¹⁴ (EPA OW)					
Soman (GD)	96-64-0	GC-MS	EPA/600/R-16/115	*I	EPA/600/R-16/115	*I	EPA/600/R-16/115	*I	TO-17 ⁴ (EPA ORD)	*II	EPA/600/R-16/115	*I
Strychnine	57-24-9	GC-MS	EPA/600/R-16/114	II	3535A (EPA SW-846)	I	3535A (EPA SW-846)	I	Not of concern**	NA	EPA/600/R-16/114	II
					8270E (EPA SW-846)		8270E (EPA SW-846)					
Tabun (GA)	77-81-6	GC-MS	EPA/600/R-12/653	*II	EPA/600/R-12/653	*II	EPA/600/R-12/653	*II	TO-17 (EPA ORD)	*III	EPA/600/R-12/653	*II
Tetraethyl pyrophosphate (TEPP)	107-49-3	GC-MS	EPA/600/R-16/114	II	3511 (EPA SW-846)	II	3511 (EPA SW-846)	II	TO-10A (EPA ORD)	II	EPA/600/R-16/114	II
					8270E (EPA SW-846)		8270E (EPA SW-846)					
Tetramethylenedisulfotetramine (TETS)	80-12-6	GC-MS	EPA/600/R-16/114	II	EPA/600/R-16/114	I	EPA/600/R-16/114	I	TO-10A (EPA ORD)	II	EPA/600/R-16/114	II
Thallium sulfate (analyze as total thallium)	10031-59-1	ICP-AES / ICP-MS	3050B/3051A (EPA SW-846)	I	3015A (EPA SW-846)	I	200.7/200.8 ³ (EPA OW)	I	IO-3.1 (EPA ORD)	I	9102 (NIOSH)	I
			6010D/6020B (EPA SW-846)		6010D/6020B (EPA SW-846)		IO-3.4/IO-3.5 (EPA ORD)		6010D/6020B (EPA SW-846)			
Thiodiglycol (TDG) (degradation product of HD)	111-48-8	HPLC-UV / LC-MS-MS	E2787-11 (ASTM)	II	D7598-16 (ASTM)	II	D7598-16 (ASTM)	III	TO-10A (EPA ORD)	III	E2838-11 (ASTM)	II
Thiofanox	39196-18-4	HPLC-UV / LC-MS-MS	3541/3545A (EPA SW-846)	III	D7645-16 (ASTM)	II	538 (EPA OW)	I	5601 (NIOSH)	III	3570/8290A Appendix A (EPA SW-846)	III
			D7645-16 (ASTM)								D7645-16 (ASTM)	

Analyte(s)	CAS RN	Determinative Technique	Solid Samples		Non-Drinking Water Samples		Drinking Water Samples		Air Samples		Wipes	
1,4-Thioxane (degradation product of HD)	15980-15-1	GC-MS	EPA/600/R-16/114 ¹⁵	II	EPA/600/R-16/114 ¹⁵	II	EPA/600/R-16/114 ¹⁵	II	Not of concern**	NA	EPA/600/R-16/114 ¹⁵	II
Titanium tetrachloride (analyze as total titanium)	7550-45-0	ICP-AES / ICP-MS	3051A (EPA SW-846)	I	Not of concern**	NA	Not of concern**	NA	Not of concern**	NA	3051A (EPA SW-846)	III
			6010D/6020B (EPA SW-846)								6010D/6020B (EPA SW-846)	
Triethanolamine (TEA) (degradation product of HN-3)	102-71-6	LC-MS-MS / IC-conductivity detection	3541/3545A (EPA SW-846)	III	D7599-16 (ASTM)	II	D7599-16 (ASTM)	III	3509 (NIOSH)	II	EPA/600/R-11/143	II
			EPA/600/R-11/143									
Trimethyl phosphite	121-45-9	GC-MS	3541/3545A (EPA SW-846)	III	Not of concern**	NA	Not of concern**	NA	TO-10A (EPA ORD)	III	3570/8290A Appendix A (EPA SW-846)	III
			8270E ¹⁶ (EPA SW-846)								8270E ¹⁶ (EPA SW-846)	
1,3,5-Trinitrobenzene (1,3,5-TNB)	99-35-4	HPLC-UV	8330B (EPA SW-846)	I	3535A/8330B (EPA SW-846)	I	3535A/8330B (EPA SW-846)	I	Not of concern**	NA	3570/8290A Appendix A (EPA SW-846)	I
					8330B (EPA SW-846)		8330B (EPA SW-846)					
2,4,6-Trinitrotoluene (2,4,6-TNT)	118-96-7	HPLC-UV	8330B (EPA SW-846)	I	3535A/8330B (EPA SW-846)	I	3535A/8330B (EPA SW-846)	I	Not of concern**	NA	3570/8290A Appendix A (EPA SW-846)	I
					8330B (EPA SW-846)		8330B (EPA SW-846)					
Vanadium pentoxide (analyze as total vanadium)	1314-62-1	ICP-AES / ICP-MS	3050B/3051A (EPA SW-846)	I	3015A (EPA SW-846)	I	200.7/200.8 ³ (EPA OW)	I	IO-3.1 (EPA ORD)	I	9102 (NIOSH)	I
			6010D/6020B (EPA SW-846)		6010D/6020B (EPA SW-846)		IO-3.4/IO-3.5 (EPA ORD)		6010D/6020B (EPA SW-846)			
VE [phosphonothioic acid, ethyl-, S-(2-(diethylamino)ethyl) O-ethyl ester]	21738-25-0	GC-MS	EPA/600/R-16/116	*III	EPA/600/R-16/116	*III	EPA/600/R-16/116	*III	TO-17 (EPA ORD)	*III	EPA/600/R-16/116	*III
VG [phosphorothioic acid, S-(2-(diethylamino)ethyl) O,O-diethyl ester]	78-53-5	GC-MS	EPA/600/R-16/116	*III	EPA/600/R-16/116	*III	EPA/600/R-16/116	*III	TO-17 (EPA ORD)	*III	EPA/600/R-16/116	*III
VM [phosphonothioic acid, methyl-, S-(2-(diethylamino)ethyl) O-ethyl ester]	21770-86-5	GC-MS	EPA/600/R-16/116	*III	EPA/600/R-16/116	*III	EPA/600/R-16/116	*III	TO-17 (EPA ORD)	*III	EPA/600/R-16/116	*III
VX [O-ethyl-S-(2-diisopropylaminoethyl)methyl-phosphonothiolate]	50782-69-9	GC-MS	EPA/600/R-16/116	*II	EPA/600/R-16/116	*I	EPA/600/R-16/116	*I	TO-17 (EPA ORD)	*II	EPA/600/R-16/116	*II
White phosphorus	12185-10-3	GC-NPD / GC-FPD	7580 (EPA SW-846)	I	7580 (EPA SW-846)	I	7580 (EPA SW-846)	I	7905 (NIOSH)	I	3570/8290A Appendix A (EPA SW-846)	III
					7580 (EPA SW-846)							

* Only laboratories approved under the ERLN umbrella are designated for handling the CWA standards needed for this method. For access to the nearest ERLN laboratory specially trained and equipped for CWA analysis, contact the EPA Headquarters Emergency Operations Center (EPA/HQ-EOC) at 202-564-3850.

** In some cases, analytes are listed as not a concern in a particular sample type; in these cases, SAM work groups have determined that the analyte is not a concern due to a number of factors, including the analyte's low likelihood of persistence, toxicity, mobility or solubility within the particular sample type.

Footnotes

- ¹ Methods 524.3 or 524.4 may be used in place of Method 524.2 provided the laboratory has the necessary equipment and expertise.
- ² If problems occur when using this method, TO-10A should be used.
- ³ Laboratories with demonstrated expertise in collision/reaction cell procedures have the option of using SW-846 Method 3015A (sample preparation) and Method 6020B (determination).
- ⁴ If problems occur when using this method, Method TO-15 should be used.
- ⁵ The following methods can be used to analyze these compounds as total arsenic in situations where high throughput analysis is needed or where standards are not available for the specific compounds: ICP AES/MS Methods 200.7/200.8 for drinking water; Methods 3015A/6010D/6020B for non-drinking water samples; Methods 3050B/3051A/6010D/6020B for solid samples; and Methods 9102/6010D/6020B for wipes.
- ⁶ TO Methods IO-3.1, IO-3.4 and IO-3.5 address these compounds as total arsenic in air samples.
- ⁷ Method 525.3 may be used in place of Method 525.2 provided the laboratory has the necessary equipment and expertise.
- ⁸ Standard Method 4500-CN-G may be used in place of RLAB Method 3135.2I for the analysis of cyanide amenable to chlorination in non-drinking water or drinking water samples.
- ⁹ The inline distillation method, EPA-821-B-01-009, may be used to prepare and analyze for total cyanide in non-drinking water samples.
- ¹⁰ If problems occur during measurement of oxon compounds, analysts should consider use of procedures included in Kamal, A. et al. "Oxidation of selected organophosphate pesticides during chlorination of simulated drinking water." Water Research. 2009. 43(2): 522-534. <https://www.sciencedirect.com/science/article/abs/pii/S0043135408004995>.
- ¹¹ If equipment is not available or problems occur when analyzing solid and wipe samples, use CVAA Method 7471B (EPA SW-846).
- ¹² If problems occur when using EPA Method 245.1 for these analytes during preparation and analysis of non-drinking water samples, refer to EPA Method 7470A (SW-846).
- ¹³ Water extraction, filtration and acidification steps from the Journal of Forensic Science. 1998. 43(1): 200-202 should be used for the preparation of solid samples. Filtration and acidification steps from this journal should be used for preparation of non-drinking water and drinking water samples.
- ¹⁴ If analyses are problematic, refer to column manufacturer for alternate conditions.
- ¹⁵ If problems occur when using this method, SW-846 Method 8260D and appropriate corresponding sample preparation procedures (i.e., 5035A for solid samples, and 5030C for aqueous liquid and drinking water samples) should be used.
- ¹⁶ If problems occur with analyses, lower the injection temperature.